

CLAIMS

1. A device (100, 200, 300) for depositing a layer (20) based on polycrystalline silicon onto a substantially plane, elongate, moving support (4) having two longitudinal faces (43, 44) and two longitudinal side edges (41, 42), the device comprising:
- a crucible (1) containing a bath (2) of molten silicon, said support (4) being designed to be dipped at least in part in the bath and to pass substantially vertically in its long direction through the equilibrium surface (21) of the bath; and
 - at least one edge control element (5, 5', 15, 15'), each edge control element being maintained substantially vertically close to one of the two longitudinal side edges (41, 42);
- each edge control element comprising walls (51 to 53', 151 to 153') defining a longitudinal slot (54, 54', 154, 154') beside the corresponding longitudinal side edge, each slot being dipped in part in the bath (2) so as to raise the level of the bath by capillarity in the vicinity of the corresponding longitudinal side edge,
- the device being characterized in that at least one of the walls (51 to 52', 151 to 152'), referred to as an "insertion" wall, facing part of one of the longitudinal faces, is substantially plane.
2. A device (100, 200, 300) according to claim 1, for depositing a layer based on polycrystalline silicon and comprising two edge control elements, in which each edge control element includes two substantially plane insertion walls.
3. A device (100, 200, 300) according to claim 2, for depositing a layer based on polycrystalline silicon, the device being characterized in that the insertion walls are either parallel (51 to 52', 151 to 152') or else outwardly flared.

4. A device (100, 200, 300) according to claim 2 or claim 3, for depositing a layer based on polycrystalline silicon, the device being characterized in that the mean
5 depth of each slot (54, 154') is less than 1 cm.

5. A device (100, 200, 300) according to any one of claims 2 to 4, for depositing a layer based on polycrystalline silicon, the device being characterized in that the mean
10 spacing between the insertion walls (51 to 52', 151 to 152') is less than 7 mm.

6. A device (100, 200) according to any one of claims 2 to 5, for depositing a layer based on polycrystalline
15 silicon, the device being characterized in that the crucible (1) comprises a bottom (11) and side walls (12), and each of the edge control elements (5, 5') being stationary and held vertically by the bottom.

20 7. A device (100, 200) according to any one of claims 2 to 5, for depositing a layer based on polycrystalline silicon, the device being characterized in that the crucible comprises a bottom (11) and side walls (12), and each of the edge control elements (5, 5') extend
25 longitudinally to the bottom and preferably forms a monolithic structure with the bottom.

8. A device (100, 200) according to claim 7, for depositing a layer based on polycrystalline silicon, the
30 device being characterized in that each of the edge control elements (5, 5') presents at least one orifice (7, 7') dipped in the bath (2) and suitable for feeding silicon to said element, the orifice being preferably of millimeter order and situated close to the bottom.

35

9. A device (300) according to any one of claims 2 to 6, for depositing a layer based on polycrystalline silicon,

the device being characterized in that each of the edge control elements (15, 15') comprises a plate including said slot (154, 154'), the plate being brought into contact with the equilibrium surface (21) of the bath.

5

10. A device (300) according to claim 9, for depositing a layer based on polycrystalline silicon, the device being characterized in that contact with the surface (21) of the bath takes place by means of a connection (17, 17') between the plate and displacement means (19, 19') external to the crucible (1), and preferably allowing vertical displacement only.

11. A device (300) according to claim 9 or claim 10, for depositing a layer based on polycrystalline silicon, the device being characterized in that each plate (15, 15') comprises a disk including said slot (154, 154') and presenting an effective diameter greater than 10 mm, and preferably equal to about 12 mm.

20

12. A device (300) according to any one of claims 9 to 11, for depositing a layer based on polycrystalline silicon, the device being characterized in that the mean spacing between the insertion walls (151 to 152') is about 2 mm.

25

13. A device (100, 200, 300) according any one of claims 1 to 12, for depositing a layer based on polycrystalline silicon, the device being characterized in that each of the edge control elements (5, 5', 15, 15') is made of a material that does not react with silicon and that is preferably selected from graphite, silicon carbide, and silicon nitride.

30

14. A device (100, 200, 300) according any one of claims 1 to 13, for depositing a layer based on polycrystalline silicon, the device being characterized in that each of

35

the edge control elements (5, 5', 15, 15') is made of a material presenting emissivity greater than the emissivity of silicon.